

Title (en)

INTELLIGENT CONTROL SYSTEM FOR ADAPTIVE CARDIAC RESYNCHRONIZATION THERAPY DEVICE

Title (de)

INTELLIGENTES KONTROLLSYSTEM FÜR EIN ADAPTIVES HERZRESYNCHRONISATIONSTHERAPIE-GERÄT

Title (fr)

SYSTEME DE CONTROLE INTELLIGENT POUR UN DISPOSITIF ADAPTATIF DE THERAPIE DE RESYNCHRONISATION CARDIAQUE

Publication

EP 2046445 A4 20130213 (EN)

Application

EP 07789955 A 20070717

Priority

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- US 80751306 P 20060717

Abstract (en)

[origin: WO2008010220A2] An adaptive CRT control system that achieves optimal AV delay and VV pacing intervals associated with temporal patterns of stroke volumes that represent internally the heart conditions is disclosed. The adaptive CRT control system includes: (a) at least two implanted electrodes in patient heart and at least additional one hemodynamic sensor able to indicate the stroke volume heartbeat after heartbeat; (b) an input pre processing stage synchronizer priority classifier that synchronize on the sensed atrial event, classify heart conditions and associate the learned optimal pacing intervals according to prioritized operational modes and learning schemes; (c) a learning module that with the input stage synchronizer priority classifier processes the inputs of the implanted electrodes and hemodynamic sensor and using a reinforcement learning scheme learns to achieve and to associate optimal pacing intervals at each heart condition with temporal patterns of stroke volumes; (d) an algorithmic micro-controller module that supervises the learning module and control a pulse generator module, and (f) a pulse generator that delivers therapeutic stimulation to the patient heart.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

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- [XD] WO 2005007075 A2 20050127 - AI SEMI LTD [IL], et al
- [XI] ROM RAMI ET AL: "Adaptive cardiac resynchronization therapy device: a simulation report", PACE - PACING AND CLINICAL ELECTROPHYSIOLOGY, BLACKWELL FUTURA PUBLISHING, MALDEN, MA, US, vol. 28, no. 11, 1 November 2005 (2005-11-01), pages 1168 - 1173, XP002564864, ISSN: 0147-8389, [retrieved on 20051111], DOI: 10.1111/J.1540-8159.2005.40007.X
- See references of WO 2008010220A2

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